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**United States Patent [19]**

Cartagena

[11] **Patent Number:** 5,374,567[45] **Date of Patent:** Dec. 20, 1994[54] **OPERATIONAL AMPLIFIER USING  
BIPOLAR JUNCTION TRANSISTORS IN  
SILICON-ON-SAPPHIRE**

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[21] Appl. No.: 65,321

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[51] Int. Cl.<sup>5</sup> ..... H01L 21/265

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437/84; 437/247; 148/DIG. 150; 148/DIG. 77

[58] Field of Search ..... 437/31, 21, 84, 247,  
437/32; 148/DIG. 77, DIG. 150[56] **References Cited****U.S. PATENT DOCUMENTS**

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[57] **ABSTRACT**

A method for fabricating low leakage current bipolar junction transistors of silicon-on-sapphire for efficient use in operational amplifiers utilizes all implant technology, improved silicon conditioning processing, and low temperature annealing.

8 Claims, 9 Drawing Sheets

**Legend**

- Sapphire**       **P- Silicon**
- N Silicon**       **Oxide**
- N+ Silicon**       **Metal**
-  **P+ Silicon**

